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10/050,604	01/18/2002	Masakazu Ogasawara	Q68036	4626

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EXAMINER
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CHOW, LIXI

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/050,604

Applicant(s)

OGASAWARA, MASAKAZU

Examiner

Lixi Chow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Claims 1, 3-6 and 8-10 are pending.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 recites, "wherein said first aberration correction element mainly corrects low-order and large aberrations, and said second aberration correction element principally corrects high-order and small aberrations". Such claim limitation is considered vague and indefinite, because Applicant has not defined the scale of low-order aberrations, high-order aberrations, small aberrations and large aberrations. In other words, the claims do not specify the cut off point between a high-order aberration and low-order aberration, and large aberrations and small aberrations.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US 6,885,616; hereafter Kikuchi).

Regarding claim 1:

Kikuchi discloses an aberration correcting apparatus for correcting aberration in an optical path of an optical system which irradiates a recording medium with a light beam and guides the light beam reflected from said recording medium, comprising:

an object lens (see Fig. 9, element 14) for focusing the light beam on said recording medium;

a first aberration correction element (see Fig. 9, element 13) movable along the optical axis of said light beam for correcting the aberration of the light beam (see Fig. 9, element 13 is driven by the driving circuit 20 to move along the optical axis, which is indicated by the letter 'w');

a driver (see Fig. 9, element 20) for positioning said first aberration correction element along the optical axis in response to a drive control signal (see Fig. 9 and Col. 10, lines 40-50);

a second aberration correction element (see Fig. 9, element 12) having a plurality of phase adjustment portions each generating an amount of phase change in the light beam, the amount corresponding to an adjustment signal (see Fig. 10 and Col. 8, lines 42-46);

a phase adjuster (see Fig. 9, element 21) for supplying said adjustment signal to the respective adjustment portions in response to a phase control signal (see Col. 8, lines 1-60; the driving circuit 21 depicted in Fig. 9 provides the phase control signal to different areas of the phase device 12);

a light receiver (see Fig. 9, element 17) for receiving the light beam reflected from said recording medium to generate a light-receiving signal; and

a controller for generating said drive control signal and said phase control signal based on said light-receiving signal (see Fig. 9, element 18), wherein said phase adjuster corrects a

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residual aberration after correction by said first aberration correction element (Col. 15, lines 34-36 suggest that the position of the first and second aberration correction elements can be exchanged; therefore, the phase device 12 corrects the residual aberration after correction by the aberration compensation lens 13).

Kikuchi discloses the claimed invention except for the second aberration correction element being integrally formed with the object lens so as to be in alignment with each other. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have integrally formed the second aberration correction element with the object lens. The motivation would have been: lacking any unobvious or unexpected results, forming two parts into one would have been provided through routine engineering optimization and experimentation. Doing so would have provided a simpler assembly and more compact structure. Additionally, it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art; see *In re Larson*, 144 USPQ 347 (CCPA 1965) regarding these matters.

Regarding claim 8:

Kikuchi discloses the aberration correcting apparatus, wherein said second aberration correction element is a liquid crystal panel (see Col. 8, lines 8-21).

Regarding claim 9:

Kikuchi discloses the aberration correcting apparatus, wherein said second aberration correction element and said object lens are aligned such that their optical axes are in alignment with each other (see Fig. 9; elements 9 to 17 are arranged along the optical axis OA, therefore, the second aberration correction element 12 is inherently being aligned with the object lens 14).

Regarding claim 10:

Kikuchi discloses the aberration correction apparatus, wherein said first aberration correction element mainly correct low-order and large aberrations, and said second aberration correction element principally corrects high-order and small aberrations (see Fig. 9, the first aberration element is capable of moving in the 'w' direction, hence, changing the beam to correct low-order and large aberration; the second aberration element is used to adjust the phase of the beam, therefore, correcting the large-order and small aberration).

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi in view of Best et al. (US 5,905,700; hereafter Best). For a description of Kikuchi, see the rejection above.

Regarding claim 3:

Kikuchi is silent as to the first aberration correction element including a concave lens and a convex lens, however, Best discloses an aberration correcting apparatus, wherein said first aberration correcting element includes a concave lens and a convex lens sequentially arranged from a light source of the light beam, and said driver drives said convex lens (see Fig. 14 and Col. 12, lines 19-39; Best suggests concave lens 574 is stationary and convex lens 572 is movable).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to have driven the convex lens in the compensation lens system 13 of Kikuchi as taught by Best. One of ordinary skill in the art would have been motivated to do this, because a less complicated aberration correction apparatus could be achieved by only driving one of the lenses in a two lens system, thus reducing power and simplify control operation.

Regarding claim 4:

Kikuchi is further silent as to the first aberration correction element includes a concave lens and a convex lens, but Best disclose an aberration correcting apparatus, wherein said first aberration correcting element includes a concave lens and a convex lens sequentially arranged from a light source of the light beam, and said driver drives said concave lens (see Fig.-14 and Col. 12, lines 19-39).

The motivation for combining the teaching of Kikuchi and Best is the same as the motivation provided for claim 3.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi in view of in view of Ueda et al. (US 6,418,108; hereafter Ueda).

Regarding claim 5:

Kikuchi does not disclose that the first aberration correction element includes a collimating lens for collimating the light emitted from the light source, however, Ueda discloses an aberration correction apparatus, wherein said first aberration correction element (Fig. 1, element 14; the actuator is used to move the collimator lens to correct the spherical aberration) includes a collimating lens (Fig. 1, element 13) for collimating the light emitted from a light source of the light beam (see Ueda, Fig. 1 and Col. 6, lines 46-59).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to have modified the aberration correction element of Kikuchi with the aberration correction element of Ueda that includes a collimating lens. One of ordinary skill in the art would have been motivated to carry out the modification, because a collimating lens is capable of turning incident light into diverging light or converging light to correct the spherical

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aberration (see Ueda, Col. 6, lines 55-58). Such modification would eliminate the problem caused by the thickness error of the light transmitting layer. Hence, making the aberration correction element more versatile amongst different discs.

Regarding claim 6:

Kikuchi further does not disclose that the first aberration correction element includes a collimating lens for collimating the light emitted from the light source, but Ueda discloses an aberration correction apparatus, wherein said first aberration correction element (Fig. 1, element 14; the actuator is used to move the collimator lens to correct the spherical aberration) includes a collimating lens (Fig. 1, element 13) for collimating the light emitted from a light source of the light beam, and said driver changes a distance between said light source and said collimating lens (see Ueda, Col. 6, lines 46-59; the actuator 14 drives the collimating lens in a direction along the optical axis).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to have modified the aberration correction element of Kikuchi with the aberration correction element of Ueda that includes a collimating lens. One of ordinary skill in the art would have been motivated to carry out the modification, because a collimating lens is capable of turning incident light into diverging light or converging light to correct the spherical aberration by driving the collimator lens along the optical axis (see Ueda, Col. 6, lines 55-58). Such modification would eliminate the problem caused by the thickness error of the light transmitting layer. Hence, making the aberration correction element more versatile amongst different discs.

### ***Response to Arguments***



7. Applicant's arguments filed 9/29/05 have been fully considered but they are not persuasive.

Applicant argues, "there is no teaching or suggestion in Kikuchi of a second aberration correction element being integrally formed with said object lens so as to be in alignment with each other". However, the limitation of "integrally formed" is not considered a patentably distinct feature. Kikuchi discloses all the elements specified by claim 1, except, Kikuchi does not mention the second aberration correction element being integrally formed with said object lens. However, the use of one piece construction instead of a two piece structure is matter of obvious engineering design choice. One of ordinary skill in the art would have been motivated to integrally form the second aberration correction element with the object lens, because it is considered an obvious design choice. Furthermore, the assembled aberration correcting apparatus would be considered an "integrally formed" unit comprising of all the elements listed in the claim. Accordingly, claim 1 is not patentable over Kikuchi.

Similar arguments are made with respect to Best and Ueda, however, they are unpersuasive for the same reason set forth in the response to arguments, above.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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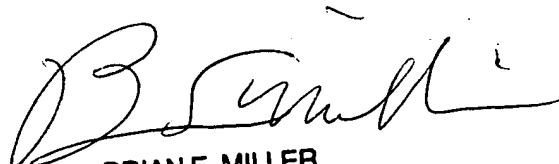
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LC 12/27/05



**BRIAN E. MILLER**  
**PRIMARY EXAMINER**